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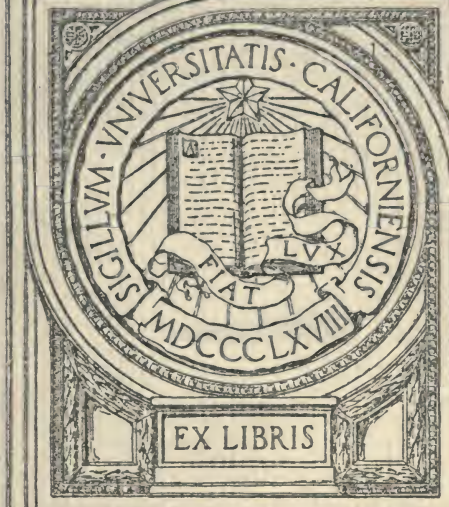
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BULLETIN OF THE UNIVERSITY OF WISCONSIN
No. 757. High School Series No. 16

Suggestions

for

School and Home Projects in Agriculture

By
K. L. HATCH
Professor of Agricultural Education
The University of Wisconsin
AND
W. F. STEWART
Assistant in Agricultural Education
The University of Wisconsin

MADISON
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FOREWORD

As agricultural subjects are finding their way into the curricula of secondary schools, teachers are confronted with various problems in connection therewith. The successful conduct of laboratory work is one of the most perplexing of these. In the development of agricultural courses both teachers and pupils are turning to home gardens, fields, farm buildings, herds and flocks for their material for practice work. There only, the great laboratory of agriculture is to be found. The work in this laboratory has frequently been termed "Home Projects,"—probably because it is not carried on within the walls of the schoolroom.

Various reasons are given why "Home Projects" are of great importance in the study of elementary and secondary agriculture. It is for the purpose of outlining some of these reasons, indicating the scope and character of this work and suggesting methods whereby these practical projects may be conducted, that this bulletin has been prepared.

Interest—the vital factor of successful teaching, *is developed to a high degree through originality.* That the initiative of the teacher may not be destroyed, and his interest, therefore, maintained, the outlines presented herewith are intended only to be *suggestive.* Teachers of agriculture are asked to first consider carefully the needs of their pupils and the opportunities offered in their school laboratories and, with these as a basis, to outline the methods which will most successfully meet the demands of the projects under consideration. If the outlines herein suggested are of assistance to such teachers this bulletin will have served its purpose.

Since "Practical Project Work" is a new field in education the writers especially invite helpful criticism and constructive suggestions.

SUGGESTIONS FOR SCHOOL AND HOME PROJECTS IN AGRICULTURE

PRACTICAL PROJECTS

Purpose

With the increase in the number of schools teaching agriculture and with the improvement in the preparation of teachers for this field of service, the scope of the course in agriculture is enlarging in both theory and practice. School agriculture is usually placed in the same class as the older sciences, but so fixed by traditions are the methods of teaching the sciences that it there receives the customary treatment. This should not become the established custom. While agriculture is a *science* it is also an *art* and the subject cannot be developed properly unless both of its branches receive the necessary consideration. The development of the art of agriculture coordinately with the underlying science constitutes correct agricultural teaching.

For presenting a course in science, as physics, the school laboratory has been equipped for making applications of a practical nature. In the more progressive laboratory practice this study has been extended to lighting plants, manufacturing establishments and waterworks where practical studies have been made of physical phenomena, and their applications observed. The result has been a closer correlation of school work with the daily life of the community.

The laboratory practice in agriculture must include similar application. Special emphasis must be placed upon this work for it is by this means that the art of agriculture as it has been practiced is to be converted into scientific practice based upon fundamental laws which investigation and experiment of recent years have verified. Without this opportunity for practice there is no application of theory to practice and there is, therefore, no sound justification for placing agriculture in the curriculum.

The kindred subjects of manual training and domestic science have the work bench and the kitchen respectively where their

practical work is done. In general, the nature of this work is identical with the application of these subjects in the occupations in which they are employed. The construction of furniture or buildings is performed with the same tools, material, and care in manual training practice work that it is in the shop. Likewise the laboratory work in cooking and sewing is done with the same equipment used in similar work in the home. The value of such practice in these courses is unquestioned and needs no argument for its justification. *Agriculture should receive no less attention.* The laboratory exercise must be intimately associated with practical work. In addition to sensitive balances and other miniature apparatus, the laboratory must be equipped with farm scales, hoes, forks, seeds, machinery, live stock, and trees with which the pupil is to subject the theory of scientific agriculture to the rigid test of practical application. The *home* supplies all of this equipment. The pupil's interests are in the *home*, the parents' interests are in the *home activities of the child*, and—though many teachers seem not to recognize the fact—*the school exists but to supplement the home* in the education of the child. The pupil's interests in farm life should be increased. The home, therefore, is the place to carry on the larger practical projects of the course. The home must be made a part of the school's agricultural laboratory.

The time for this practice is important. It is necessary that the practical application accompany or follow closely the learning process. If new practices are to be effected in the routine of agricultural pursuits they must be introduced when the new facts are first learned; otherwise these facts will be lost through confusion with later knowledge or their proper application will become less effective through this delay.

City students in agriculture have little opportunity at home for practical project work. For such, the school should supply the necessary facilities though it is doubtful if the largest educational returns can be thus achieved.

The Chief Aim of Home Projects

One of the large problems of the school to-day is to win the interest and cooperation of the parents, especially in vocational education. The home project movement is a means by which this may be accomplished. The pupil, interested and enthusiastic over a home project, is a subject of exceptional interest

to the parent. With the home project established the parent receives the lesson from the child and, realizing its benefit, is won to its support. With the parents' growing interest in agriculture, interest and sympathy in other phases of school life will be secured.

Other Aims

But what other aims has the home project? To the child the project should be an experiment, or a revelation, or a verification; to the teacher, the project should always be a demonstration; and to the parent it should become the bond uniting parent, teacher, and school in a cooperative organization. The verification of the theory, advanced in the class room, by successful results in the project will be the means of establishing an approved agricultural practice and this continued will result in permanent improvement in the methods of farming.

Many projects may be conducted more appropriately by the older pupils which will result in increased production in which the pupil becomes a sharer. The desire for ownership is thus satisfied and at the same time made to serve a useful purpose.

An important factor in home project work is the opportunity for impressing results by contrast. Frequently good results may be obtained from certain agricultural practices which the skeptical or uninformed may be loath to accept. For home project work a part of the available material is given special attention while the remainder is given the usual care and treatment. The spraying, pruning, or rejuvenation of a part of the orchard, feeding trials applied to a part of the herd or flock, and fertilizer tests on portions of a field are suggestive of this opportunity. Those interested can thus readily determine to what factors the different results are due. In this type of project the suggestions of the teacher are especially valuable throughout its continuance.

As the home project idea progresses it may be made a forceful lesson in economics and farm management. The results obtained from one project should suggest better methods to be employed in others and the results from several demonstrations should in turn suggest the need for careful study of all phases of agricultural practice until efficient farm management results.

Scope

The scope of the home projects will vary with the ability of the pupil. A boy, young or inexperienced, should not be assigned a project the very scope of which would at the outset destroy his desire for agricultural work. In such a case a seven day cow test can be made more effective than a herd, month, or year test. Likewise a project in the pruning of one tree might stimulate more interest than the pruning of the entire orchard. A small project in farm carpentry can be used to introduce a more extended and laborious project of farm construction. *The result of the project as measured by its stimulating and educative influence on the child is of first consequence—not the requirement that every child meet fixed standards of equal rank.*

In promoting the project, the pupil's *interest* is the first requisite and becomes the keynote of success. With interest awakened, the project is well begun and may be more easily brought to a successful finish. Interest will be conserved if work on the project is begun during the study of related topics in the regular class room work.

With younger pupils, projects which produce early visible results are desirable in that interest is more easily created and maintained. Illustrations of this type are the keeping of milk or feed records, records of the germination test of seed grain, of the weighing of growing animals, and many of the smaller projects of construction in farm mechanics. Projects, the results of which are not immediately apparent and which, therefore, should be assigned to the older pupils, are those dealing with soils, fertilizers, and feeding maintenance rations. Another factor which must be considered is the possibility of either *immediate* or *remote* results. This distinction is not necessarily one of time. Some projects may run for a continued period and yet show results at intermediate periods. Others, however, may continue for a long time and the valuable results will be determined only at their conclusion. Illustrative of the former class is the trial of feed rations on egg or milk production, and of the latter, a determination of the effect of commercial fertilizers on the yield of grain.

Method

The method of conducting the projects may vary greatly in details. A few fundamental factors, however, are of prime importance.

The School and The Home. The wholehearted cooperation of the parents is desirable in order that the project may reach its highest state of perfection. While this is easy to obtain in localities where parental interests are urging the movement onward, it is too often difficult to secure. In the latter instance it remains for the teacher, through tact and that indescribable force which we call "personality," to obtain this cooperation. Usually it will be better to work through the child and his interests. Activities built around the child are more readily accepted by parents than those based upon theory or science. The human interest element is the strongest possible factor.

If the parents' cooperation is not forthcoming it is not necessary that all attempts at home work be despaired of. The child may be able to carry on some less elaborate project which *will* arouse the interests of the parents. The reports of successful projects conducted at other homes and the value thereof should find their way into the home of the non-sympathetic parents.

Although doubt, ignorance, and false conceptions will obstruct progress these should be overcome as home projects develop. Home projects should convert their own critics when it can be shown that they "pay their way." For the present, however, the successful introduction of the home project idea will have to depend upon the teacher.

The Individual or the School Project. In conducting the projects the work may be done either by individual pupils or by groups *at home or at school.* Most frequently individual projects will be chosen or assigned but occasionally it will be of advantage to have two or more pupils work together. This is particularly true in the case of school projects. This will also be true in construction projects in carpentry, cement work, fence building, and larger spraying or pruning projects. The important point is this: *All workmen should share equally in the project,* the practice as well as the results.

Interest the First Essential. The selection of the project for individual pupils should be determined by the dominating interests of the pupil. It is important that the factor of interest

dominate. This requires the careful and tactful direction and advice of a teacher, well-informed on the ability and equipment of each pupil and the requirements for each project. The teacher should so direct the selection that pupils may not undertake projects beyond their ability or unrelated to their work. If individual interests permit there should be a variety of projects for interstudy. The teacher must realize that a correct start is an important help toward a successful finish.

Necessary Preparation. The project selected or assigned, the next step is preliminary to beginning the project itself. *The teacher and the pupil should discuss fully the plan for carrying on the project.* So far as possible the child should suggest the steps he proposes to follow. If these suggestions do not meet the approval of the teacher the child should be questioned and thus led to the right course. This preliminary plan should consist of the steps to be followed and the points to be observed as the project progresses. With these outlined the pupil is ready to undertake his project.

The application of the steps will consist largely of manual labor but it should be different from a great deal of manual labor in that it is not working by "rule of thumb" for each step in the process is known and its scientific basis understood. It is not dull routine but scientific practice.

Supervision. *As the projects develop it will be necessary for the teacher to mark the progress.* In so far as is possible visits should be made to the various homes. Especially should this be done at the critical stages of the work. The object of these visits is to note developments, to place emphasis where needed, and to give necessary suggestions or directions. The number and time of these visits will vary greatly in different projects. Feeding projects will need the most attention when they are being started; cropping projects will need especial attention when the ground is being prepared, during the later cultivation and at harvest time; spraying, at the time of the first application and again when results are to be accurately determined.

The necessity of having the teacher oversee the home projects makes it desirable that the teacher of agriculture be employed by the calendar year. However, the teacher not so employed should not despair since there are a very large number of projects that should be carried on at appropriate times during the regular school year. But the teacher employed by the year has a de-

cided advantage in practical project work since all those having to do with the production of crops need attention during the summer months. In addition to supervising home projects, he may cooperate with farmers in the solution of related problems arising in the agricultural practices of the neighborhood. In this way the teacher's influence should be of great value in establishing more firmly the home project idea in the community.

Reports. Reports on the development of the larger projects should be made by the pupil to the teacher, as a means of following the various projects when he is unable to visit them. The reports furnish a check on the pupils' work and, if made available to all project workers, they will serve as a basis for comparison of results on projects of the same kind.

These reports should be made only at the critical periods of the project, e.g., when the sprays are applied to the trees or plants or when the tests are made in a herd testing project. It is evident that these reports will vary in frequency but they should be based on essential points and given with a minimum of detail.

An occasional report made orally to the class when school is in session will stimulate interest and serve as a basis for class discussions.

Card files afford a convenient, compact, and readily available means of filing reports. If card files are not available note books may be substituted. In either case the data should be accessible to all project workers at all times.

Interpretation of Results. *Interpretation of results should accompany or follow the projects.* If the results have approached the optimum, if they have been average or if perchance disastrous results have occurred the cause in every case should be ascertained and methods of improving the practice discussed.

By careful planning, execution, and interpretation of final results in project work it may be made to stimulate interest in agriculture, arouse lethargic parents and enormously enhance the value of agricultural instruction.

THE FACTOR OF LOGICAL SEQUENCE

Suggested Outlines for a Series of Projects in Dairying

In the following outlines will be observed natural development from the simple to the complex. Beginning with a simple laboratory exercise in testing milk an extension and enlargement is made through a series of projects in testing and feeding until a more complex project is reached in the study of the economic relation of feed rations to butter fat production. This *economic* feature of project work must be *emphasized* wherever it appears for in it is found not only a stimulating motive but also the *important* lesson which is to be impressed by the project itself.

In connection with each project the object to be attained, the necessary class room preparation for the work, the method of putting it into operation, and the practical application must be clearly understood.

SUGGESTIVE OUTLINES ILLUSTRATING LOGICAL SEQUENCE OF PROJECTS

I

Object—To test milk of individual cows for butter fat.

Preparation:

1. A study of the necessary steps in the operation of the Babcock tester.
2. A study of the method of sampling and preserving milk.
3. A knowledge of the composition of milk.
4. Practice in sampling and testing milk and calculating yields.

Operation:

1. Take samples of milk.
2. Make tests in duplicate with the Babcock tester.

Application:

Compare the tests made with record tests and average tests of breeds and of individual cows.

II

Object—To test the milk of all the cows of the herd for butter fat.

Preparation:

1. As in Exercise 1.

Operation:

1. As in Exercise 1 but applied to each member of the herd.

Application:

Rank cows according to test and study causes of differences in test, such as age, breed, and period of lactation.

III

Object—To obtain a seven day milk record of one or more cows.

Preparation:

1. Study what the milk record should show and how these facts are recorded.
2. Study the various forms of record sheets used.
3. Prepare or obtain a record sheet.

Operation:

1. Place scales and record sheet in a convenient place.
2. Weigh milk and record weights at each milking.
3. Calculate total production by weight for the week.

Application:

Rate cows according to production and study the individuals of special merit noting good points, the causes of differences in production due to breed, feed, or period of lactation.

IV

Object—To obtain seven day butter fat production of one or more cows.

Preparation:

1. Study methods of conducting the official seven day test.
2. Take steps under Preparation in Projects 2 and 3.
3. Practice in calculating butter production from butter fat test and milk production.

Operation:

1. Take steps under Operation in Projects 2 and 3.
2 Calculate butter fat production of each cow.

Application:

Rate cows on basis of butter fat production and compare with rating in milk production.

V

Object—To obtain accurate data on amount and value of butter fat produced annually by each cow of the herd.

Preparation:

1. Study method of conducting the official yearly test.
2. Prepare milk record sheets.
3. Rank the cows as the owner thinks they should be ranked.

Operation:

1. Keep milk records of the herd as in Project 2.
2. Test as in Project 2 following the method of official annual test.
3. Calculate butter fat production as in Project 4.
4. Calculate value of butter fat produced on basis of market prices.
5. Keep permanent records of data and calculations.

Application:

Rate animals according to production, compare with owner's opinion of rank, and study causes of differences in butter fat production.

VI

Object—To keep a feed record of the herd for a month.

Preparation:

1. Gain a knowledge of methods of weighing rations.
2. Provide equipment for ready and accurate weighing.
3. Prepare feed record sheet.

Operation:

1. Weigh grain and roughage fed each animal.
2. Keep record of weights.
3. Calculate total of each kind of feed given each animal.
4. Calculate total feed used.

Application:

Calculate cost of feed for each cow and of total feed for the

herd at current prices and generalize on cost of keeping a cow at current prices for the month under consideration.

VII

Object—To keep a feed record of a herd for one year.

Note: It will be readily observed that this is but an extension in time of Project 6, with the addition of seasonal variation.

RESULTS OF A COW-TESTING PROJECT IN A SECONDARY SCHOOL

Owner	No. Cows	Av. Lbs. Milk	Av. Lbs. B. F.	Av. B. F. Test	Highest B. F. Producer	Lowest B. F. Producer
1	8	8310	324.7	3.91	419	212.6
2	13	8703	311.9	3.58	488.1	155
3	14	6499	302.5	4.65	413	177
4	28	6926	245.6	3.54	419.2	134.1
5	19	5940	225.6	3.79	294.7	136
6	18	6247	208.6	3.33	324.2	84.9
Average		6898.4	257.95	3.74		

Average cost of feed $52.36.

Calves selected from one of the herds in this association by means of the yearly test of dams

VIII

Object—To keep feed record and butter fat production as a basis for the study of net returns.

Preparation:

1. Same as for Projects 5 and 7 combined.

Operation:

1. Combine Projects 5 and 7.
2. Calculate net profit or loss for each cow.

Application:

Determine the causes affecting profit or loss on individual animals and suggest practical method of increasing the net profits of the herd most economically.

IX

Object—To introduce balanced rations into the feeding system.

Preparation:

1. Make a study of feed requirements of the animal.
2. Make a study of nutritive ratio—what it is, how calculated, its value.
3. Note variations of nutritive ratio with varying demands made upon the animal.
4. Note variations in the amount of feed with different demands made upon the animal.
5. Make a study of available feeds and relative cost of each.

Operation:

1. Calculate nutritive ratio of rations being fed on the farm.
2. Substitute other feeds in the rations so as to provide most economically the desired nutritive ratio from the required amount of feed.

Application:

Calculate cost of feed used in balancing ration and compare cost of this feed with increased returns resulting from its use.

Suggested Projects in Orcharding

As in dairying it is possible to introduce a variety of projects differing in complexity so in orchard management opportunity is afforded for a series of projects ranging from the simple to the complex whose results emphasize the economic importance

of scientific orchard management. The order in which these exercises may be introduced will vary in different orchards since the immediate needs of one orchard may not be identical with those of another. In some orchards few if any projects will be provided; in others opportunity for several will appear. Here too, as in other projects, the economic aspect must be kept in mind as the highest aim of the project.

I

Object—to fill in an old orchard or to set out a new one.

Preparation:

1. Secure information on reliable nurseries.
2. Make a study of proper methods of keeping trees, if necessary, before transplanting.
3. Make a study of proper methods of planting.
4. Study the care of young trees after planting.
5. Decide upon kind of fruit, variety, and nursery with which to deal.

Operation:

1. Purchase trees.
2. "Heel in" if necessary.
3. Transplant trees.
4. Prune trees, if necessary.
5. Care for trees after planting.

Application:

Study cause of failure of such trees as do not respond properly to this management.

II

Object—To prune an orchard and to study its effect upon yield. (As a check a portion of the orchard should be left untreated and yields compared).

Preparation:

1. Study purpose of pruning.
2. Study how to prune.
3. Study time to prune.
4. Study kinds of pruning.
5. Study use of pruning tools and their operation.

Operation:

1. Study each tree and determine how each should be pruned.
2. Prune as determined upon by careful study.
3. Treat the cut surfaces.

Application:

Compare yield and quality of product of pruned and unpruned trees.

A short time school project in orcharding

III

Object—To introduce new varieties of fruit by means of grafting.

Preparation:

1. Study grafting operations, time, and tools.
2. Select trees and scions to be grafted.
3. Prepare grafting wax.

Operation:

1. Make the grafts.
2. If top grafts watch them closely for indications of infection.
3. If new stock keep account of the number that fail to unite.

Application:

Determine percentage of successful grafts and probable cause of failures.

IV

Object—To spray for prevention or destruction of fungi or insect pests or both.

Preparation:

1. Study the purposes of spraying.
2. Study the common pests, their habits, feeding and methods of control.
3. Study the preparation of desirable insecticides and fungicides.
4. Study the apparatus used in applying spraying mixtures.

Operation:

1. Prepare sprays and spraying mixtures.
2. Apply prepared mixture at the proper time and in the approved manner.
3. Repeat the application when necessary.

Application:

If check trees are used compare fruit of sprayed and unsprayed trees.

V

Object—To fertilize for the purpose of improving soil conditions. (May be combined with Projects 2 and 4).

Preparation:

1. Study the food requirements of growing trees and of producing trees.
2. Survey the home orchard for these needs.

Operation:

1. Apply fertilizers as necessity demands.

Application:

Note effects of treatment on appearance of trees and compare yields with previous yields.

VI

Object—Scientific Orchard Management. (A combination of all projects).

Preparation:

1. Make a study of soil management of orchards.
2. Make a study of varying needs of growing and producing orchards.
3. Make a study of the advantage or disadvantage of growing crops in young orchards and of clean cultivation and cover crops in old orchards.
4. Make a study of the value of pruning, spraying, thinning, and other phases of scientific orchard management.

Operation:

1. Apply the practices necessary to successful orchard management.

Application:

Through the keeping of accurate records determine the economic value of such management.

Suggested Titles for a Series of Projects in Corn Growing

1. To select seed corn.
2. To cure seed corn.
3. To make a germination box.
4. To make a germination test of seed corn.
5. To grade seed corn.
6. To grow an acre of corn for maximum production.
7. To grow an acre of corn for highest quality and maximum yield of seed and feed corn.
8. To grow an acre of corn for maximum yield, high quality and the most economic production.

THE FACTOR OF TIME

The following projects are outlined for the purpose of illustrating the factor of time. As the amount of time available for project work at different seasons varies with the project and with the different pupils it is advantageous to have projects covering different periods of time. It is to satisfy such a demand that these projects are suggested.

This classification has no relation however to the length of time for which the teacher is employed. It is evident that many *short time* projects must be carried on during the summer months and that other *long time* projects fall within the usual limits of the school year.

SHORT TIME PROJECTS

I

Object—To make a germination test of seed corn.

Preparation:

1. Make a study of temperature and moisture conditions necessary for a good germination test.
2. Make a seed corn tester.

Operation:

1. Place and number the seed ears.
2. Remove the kernels and fill the tester.
3. Supply the necessary conditions for germination during the test.
4. Observe the results and remove the ears of low vitality.

Application:

Calculate the percentage of vitality of the seed and the amount of the loss which would have resulted from the use of this seed.

II

Object—To select seed potatoes.

Preparation:

1. Make a careful study of the varieties of potatoes grown.
2. Make a study of what constitutes good seed potatoes.

Operation:

1. Mark growing hills that show desirable characteristics in late summer or early fall.
2. Later select seed from the marked hills that show desirable *producing* characteristics.

Poultry house reconstructed and made sanitary. A short time home project

Application:

Note improvement in quality and quantity of product grown from selected seed.

III

Object—To improve sanitary conditions of a poultry house.

Preparation:

1. Study the value of whitewash as a disinfectant.
2. Study how to prepare it and how and when to apply the same.

Operation:

1. Mix the lime and water.
2. Apply thoroughly with brush or spray.

Application:

Note effect on general sanitary conditions of house.

MEDIUM TIME PROJECTS

I

Object—To cure seed corn.

Preparation:

1. Study the requirements of well cured seed corn.
2. Study approved methods of curing seed by providing heat and air circulation.
3. Learn how to prepare the place for curing the corn.

Operation:

1. Provide a suitable place for curing the corn.
2. Place the corn in the curing room.
3. Inspect for invasion of pests and maintenance of proper conditions.

Application:

Compare vitality of seed properly cured with seed allowed to cure under unfavorable conditions.

II

Object—To improve the home grounds. (Landscape gardening project).

Preparation:

1. Make a study of landscape gardening practice with reference to what flowers to plant and how to arrange them.
2. Study shrubbery and trees suitable for the project under consideration.
3. Study methods of planting various shrubs, trees, and flowers.

Operation:

1. Survey the area to be improved noting what should be removed and what and where additions should be made.
2. Remove all undesirable material.

3. Make improvements in repairs on buildings, fences, walks, and the like.
4. Plant trees, shrubbery, and flowers as decided upon in the survey.

Application:

Note effect of improvements upon the appearance of the grounds.

LONG TIME PROJECTS

I

Object—To grow garden vegetables.

Preparation:

1. Study the soil and the vegetables best adapted to it.

Results obtained by an agricultural student from a "long time" project in growing an acre of corn

2. Study the time and methods of planting the seeds to be used.
3. Plot the garden to indicate the various vegetables to be grown.
4. Study method of making hotbeds and cold frames and prepare the same for use.

5. Study how to keep garden accounts and prepare account book for expense, labor, and sales records.

Operation:

1. Plant seeds in hotbeds and cold frames.
2. Fertilize garden with suitable fertilizer.
3. Prepare seed bed as needed, by plowing or spading, and harrowing or raking.
4. Plant seed and transplant plants when proper time arrives.
5. Cultivate and care for plants.
6. Harvest and dispose of the crop.
7. Fertilize and plow the ground for next year if soil demands it.

Application:

Calculate the cost of producing the crop from the following records.

1. Labor and other items expended in production.
2. Value of crops produced or
3. Value of crops consumed and amount of sales. Determine net profits on season's project.

CLASSIFIED LIST OF SUGGESTED PROJECTS BY TITLES

SHORT TIME PROJECTS

Agronomy:

Selection of seed corn.
Germination tests of seeds.
Treating seed with formalin for destruction of diseases.
Cleaning and grading seed grain.

Animal Husbandry and Dairying:

Dehorning Calves.
Whitewashing interior of stalls, hoghouse, and other outbuildings.
Detailed inspection of several farm animals noting departure from normal in health or conformation of animals.
Keeping milk record of herd for a week.
Seven day butter production for one or all cows in the herd.

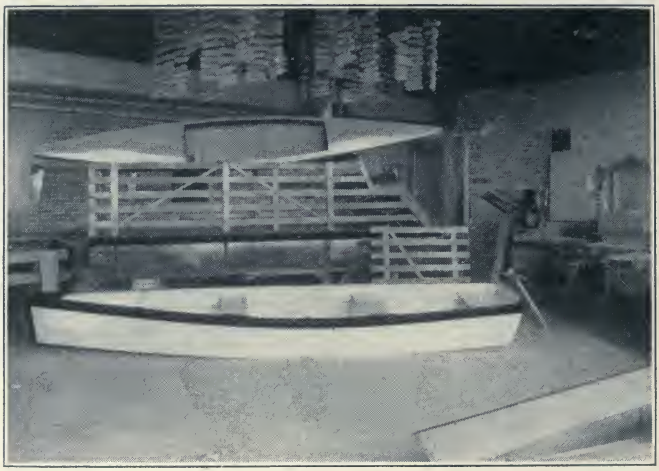
Testing milk of all cows in the herd for butter fat production.
Testing for milk, strippings, and average samples from the same cow.

Weeds:

Inspection of grain and grass seed for weed seed and other impurities.
Killing thistles, burdocks, and other weeds with brine or oil treatment.

Drainage:

Platting a drainage system.



Suggestions for short time projects in farm mechanics

Gardening:

Treating potatoes with formalin for scab.
Selecting seed potatoes.
Construction of hotbeds or cold frames.

Orcharding:

Grafting.
Pruning some or all the trees of the orchard.
Shade tree pruning.

Poultry:

Whitewashing the interior of a poultry house.

Candling or grading eggs.
Construction and use of trap nests.

Economics:
Farm accounting—taking an inventory of the farm equipment and stock.

Mechanics:
Measuring and calculating area of fields of the farm.
Mapping farm giving field locations and crop areas.
Mapping school district—farms and acreage of special crops.
Careful planning and estimation of cost of installing water supply or lighting system for the farm home.
Small carpentry projects, such as milk stools, saw horses, ladders, benches, wagon seats, sidewalks, seed corn holders, and corn germinators.
Medium carpentry projects, vine trellis, clothes holders, fence building, shingling a roof.
Planning the rearrangement of farm field fences.
Planning the rearrangement of a poorly arranged barn.
Surveying roads, their needs and cost of improvements.
Cleaning and oiling harnesses.
Making rope halters.

MEDIUM TIME PROJECTS

Agronomy:
Curing seed corn.
Cultivation of corn.

Animal Husbandry and Dairying:
Feeding and caring for calf and recording results.
Keeping feed records of farm animals for a month.
Keeping milk records of dairy herd for a month.
Keeping monthly record of butter production of one or all cows in the herd.
Calculation, use, cost, and returns of balanced rations.

Weeds:
Treating lawns for weeds.
Spraying small field for destruction of weeds.

Drainage:
Securing drainage by laying a line of tile.

Gardening:

Transplanting from hotbeds and cold frames and subsequent cultivation of product.

Spraying potatoes for insect pests or fungi.

Growing plants in hotbeds or cold frames for transplanting.

Orcharding:

Tree surgery—pruning, cementing, bracing.

Spraying orchard for control of pests and fungi.

Fruit marketing—grading, packing, and selling choice fruit

Destined for the block but "saved by grace" of a home project. Record 340 lbs. of butter fat per year

Poultry:

Remodelling poultry house for improving sanitary conditions or aiding in poultry management.

Incubation and brooding of chicks.

Economics:

Keeping farm records and accounts.

Farm management—A study of dairy, feed, and poultry records, farm sales, and inventories for determining profits or losses of the year's business.

Mechanics:

- Carpentry work—Making a split-log drag, a poultry house, or a portable hog house.
- Concrete work—Fence posts, walks, floors, tanks.
- Leveling and seeding a lawn.
- Work in landscape gardening—cleaning up flower beds, shrubbery, and lawn.

LONG TIME PROJECTS

Agronomy:

- Growing a corn crop.
- Determining unit cost production of any crop by growing the same and keeping account of all items of cost.
- Improving grain by ear-to-row method.
- Growing a plot of alfalfa.

Animal Husbandry and Dairying:

- Keeping records of weights of growing animals, calf, pig, colt, and lamb.
- Caring for calf, litter of pigs, colt, or lamb.
- Keeping feed record for farm animals for any given season or period.
- Feeding balanced rations to farm animals for any given season or period.
- Taking general care and management of a team of work horses giving attention to daily routine.
- Keeping milk records for any given season or period.
- Determining monthly or yearly butter fat production of one or all cows of the herd.
- Keeping feed records and butter fat production for determining net profits.

Soils and Fertilizers:

- Carrying on plot work in the use of commercial fertilizers and manure, singly or combined.
- Improving acid soils by use of lime.

Horticulture and Gardening:

- Growing vegetables in the garden.
- Growing flowers in garden or flower beds.
- Special culture of strawberries, blackberries, or raspberries.
- Project in potato, cabbage, tomato, onion, cucumber, or melon growing.

Starting a small fruit garden—transplanting, pruning, grafting, spraying, cultivating, and fertilizing.

Rejuvenating a neglected berry patch.

Vegetable gardening for supplying products throughout the season.

Orcharding:

Tilling and cover cropping the orchard.

Poultry:

Feeding rations for egg production.

Business management of poultry; keeping of records of feed, sales, eggs, costs, and net profits.

Bees:

Care and management of one or more hives of bees.

Economics:

Market study—Keeping records of daily or weekly prices of grain and live stock on the local and general markets.

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